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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,424	06/19/2001	Robert Mays JR.	MYS-01-08-12	9924

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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,424	MAYS, ROBERT	
	Examiner	Art Unit	
	Nathan Curs	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *1-5,8 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/02,4/04,7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the hand drawn and then photocopied portions of the drawing are unclear or illegible in places. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

2. Claims 1-5, 8 and 14 are objected to because of the following informalities:

Regarding claim 1, "each of which" in line 2 should be "where each subsystem" to remove ambiguity.

Regarding claim 2, "said modulated optical" in line 4 should be "said modulated optical energy".

Regarding claim 3, "claim 1further" in line 1 should be "claim 1 further", and "sources" in line 8 should be "detectors".

Regarding claim 4, "address" in line 2 should be "addressing".

Regarding claim 5, "each of which" in line 2 should be "each network address"

Regarding claim 8, "controller, a router" in line 3 should be "controller, and a router" and there should be a semicolon at the end of the line, and "function" in line 6 should be "functions"

Regarding claim 14, "controller, a router" in line 3 should be "controller, and a router" and there should be a semicolon at the end of the line, "each of which" in line 6 should be "where each holographic transform function", and "plurality of a" in line 13 should be "plurality of"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said optical switching element" in line 4, "said plurality of ports" in line 11, and "said receiving subsystem" in lines 17 and 20. There is insufficient antecedent basis for these limitations in the claim.

Claim 4 recites the limitation "said plurality of ports" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koren et al. (US Patent No. 6826368) in view of Mears et al. (US Patent No. 5930012).

Regarding claim 1, Koren et al. disclose a method of transferring data between ports of an Ethernet switch system having a switching element and a plurality of subsystems (fig. 3, and fig. 4 elements Router 1 to Router 4, element 100; and col. 4, lines 44-65 and col. 5, lines 10-23), each of which is connected to one of said ports and has a media access controller (col. 5, lines 24-28, where the electrical interface to the external Ethernet network is a media access controller), an address table, and a router including a destination address register (col. 5, line 35 to col. 6, line 12), the routers including a plurality of sources of optical energy and a plurality of optical detectors (col. 5, lines 10-23), said method comprising: receiving a signal containing data and network addressing information, with said network addressing information including an address of one of said plurality of ports, defining a receiving port and producing, with one of said plurality of sources under control of said router and said media access controller, said optical energy modulated with said data, defining modulated optical energy and sensing data associated with said modulated optical energy and transferring said data, as electrical signals, to the port associated with said receiving subsystem (col. 5, line 56 to col. 6, line 37). Koren et al. do not disclose the LAN system of fig. 4 (excluding host sub-networks) as a single device with the optical switch having the optical transmitters and receivers as opposed to the routers having them; however, it would have been obvious to one of ordinary skill in the art at the time of the invention that the system of Koren et al. could be integrated into a single shelf device, in order to provide the benefits of e.g. economical use of space and shared power. Also, Koren et al. do disclose associating each subsystem with a specific wavelength differing from the wavelengths of the other subsystems (col. 5, lines 35-55), but not disclose associating each of said plurality of subsystems with a holographic transform function, with said holographic

transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems and transforming said modulated optical energy with said holographic transform function associated with said receiving subsystem. Mears et al. disclose a holographic optical switch where light travels from a transmitting point, through a transform, then through another matched transform to a receiving point (fig. 4 and col. 4, line 65 to col. 5, line 52). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the optical switch design of Mears et al. for the optical switch of Koren et al., to provide the advantage of very low crosstalk optical switching as taught by Mears et al.

Regarding claim 2, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 1 wherein transforming said modulated optical energy forms transformed optical energy and sensing said data associated with said modulated optical energy further includes performing an inverse transform on said transformed optical energy, before sensing said modulated optical energy, to retrieve said modulated optical energy (Mears et al.: col. 2, lines 7-12 and col. 5, lines 43-52).

Regarding claim 3, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 1 further including placing in optical communication with each of said plurality of sources, a first focusing transform element having a first holographic transform function associated therewith (Mears et al.: fig. 4 and col. 4, line 65 to col. 5, line 7), with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources and placing in optical communication with each of said plurality of detectors (Mears et al.: fig. 4, elements 8, 9 and H1-H5, and col. 5, lines 23-42), a second focusing transform element having a second holographic transform function associated therewith, with the second holographic

transform function associated with one of said plurality of sources being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said first holographic transform functions (Mears et al.: fig. 4 and col. 5, lines 43-52).

Regarding claim 4, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 1 wherein receiving a signal containing data and network addressing information further includes receiving said network address information in said destination address register and comparing a subportion of said network addressing information with information stored in said address table to ascertain to which of said plurality of ports said media access controller may transfer data (Koren et al.: col. 5, line 35 to col. 6, line 12).

Regarding claim 5, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 1, including storing within said address table a plurality of network addresses (Koren et al.: col. 5, lines 35-63). The combination of Koren et al. and Mears et al. do not disclose that the network addresses are each a 64-bit word including CONTROL information, AGE information, PORT_NO information and NET_ADDR information. However, the applicant discloses that this claimed 64-bit network address information conforms to Ethernet standards (specification page 5, lines 6-11), thus it would have been obvious to one of ordinary skill in the art at the time of the invention that the network addresses would be the claimed 64-bit words since Ethernet standards are well known and conventional.

Regarding claim 6, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 3 wherein associating each of said plurality of subsystems with a holographic transform function, further includes placing each of said plurality of subsystems in electrical communication with all of said plurality of sources (Koren et al.: col. 6, lines 13-22).

Regarding claim 7, the combination of Koren et al. and Mears et al. disclose the method as recited in claim 3 wherein associating each of said plurality of subsystems with a holographic transform function, further includes placing each of said plurality of subsystems in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems (Koren et al.: col. 6, lines 23-38).

Regarding claim 8, Koren et al. disclose an Ethernet switching system, comprising: a plurality of subsystems and an optical switching element in data communication with each of said plurality of subsystems (fig. 3, and fig. 4 elements Router 1 to Router 4, element 100; and col. 4, lines 44-65 and col. 5, lines 10-23), each of which includes a plurality of ports, each of which is connected to one of said plurality of subsystems, and a media access controller (col. 5, lines 24-28, where the electrical interface to the external Ethernet network is a media access controller), an address table and a router including a destination address register (col. 5, line 35 to col. 6, line 12). Koren et al. do not disclose the system as a single device, and do not disclose that said optical switching element includes a plurality of holographic transform functions, each of which is associated with one of said plurality of subsystems, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the system a single shelf device and to combine with the teaching of Mears et al., as described above for claim 1.

Regarding claim 9, the combination of Koren et al. and Mears et al. disclose the device as recited in claim 8 wherein said address table further includes a plurality of network addresses (Koren et al.: col. 5, lines 35-63). The combination of Koren et al. and Mears et al. do not

disclose that the network addresses are each a 64-bit word including CONTROL information, AGE information, PORT_NO information and NET_ADDR information. However, the applicant discloses that this claimed 64-bit network address information conforms to Ethernet standards (specification page 5, lines 6-11), thus it would have been obvious to one of ordinary skill in the art at the time of the invention that the network addresses would be the claimed 64-bit words since Ethernet standards are well known and conventional.

Regarding claim 10, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 8 wherein said optical switching element further includes a plurality of sources of optical energy and a plurality of optical detectors (col. 6, lines 13-38), and said plurality of transform functions are defined by first and second focusing transforms in optical communication with said plurality of sources (Mears et al.: fig. 4 and col. 4, line 65 to col. 5, line 7 and col. 5, lines 43-52 and Koren et al.: col. 6, lines 16-38), with said first focusing transform being in optical communication with each of said plurality of sources and having a plurality of first holographic transform functions associated therewith, with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources (Mears et al.: fig. 4 and col. 4, line 65 to col. 5, line 52).

Regarding claim 11, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 10 wherein said second focusing transform further includes a plurality of second holographic transform functions, with the second holographic transform function associated with one of said plurality of detectors being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said plurality of first holographic transform functions (Mears et al.: fig. 4 and col. 5, lines 43-52).

Regarding claim 12, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 11 wherein each of said plurality of subsystems is in electrical communication with each of said plurality of optical sources (Koren et al.: col. 6, lines 13-22).

Regarding claim 13, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 11 wherein each of said plurality of subsystems are in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems (Koren et al.: col. 6, lines 23-38).

Regarding claim 14, Koren et al. disclose an Ethernet switching system, comprising: a plurality of subsystems (fig. 3, and fig. 4 elements Router 1 to Router 4, element 100; and col. 4, lines 44-65 and col. 5, lines 10-23), each of which includes an address table and a router including a destination address register (col. 5, line 35 to col. 6, line 12), and a plurality of ports, each of which is connected to one of said plurality of subsystems and a media access controller (col. 5, lines 24-28, where the electrical interface to the external Ethernet network is a media access controller) and an optical switching element in data communication with each of said plurality of subsystems (fig. 4, element 100 and col. 5, lines 24-31), the routers including a plurality of sources of optical energy and a plurality of optical detectors (col. 5, line 64 to col. 6, line 38). Koren et al. do not disclose the system as a single device, and do not disclose that said optical switching element includes a plurality of holographic transform functions and means for associating each of said plurality of subsystems with one of said plurality of a holographic transform functions, each of which is associated with one of said plurality of subsystems, with said holographic transform function associated with one of said plurality of subsystems differing from the holographic transform functions associated with the remaining subsystems. However,

it would have been obvious to one of ordinary skill in the art at the time of the invention to make the system a single shelf device and to combine with the teaching of Mears et al., as described above for claim 1.

Regarding claim 15, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 14 further including means for producing, with one of said plurality of sources under control of said router and said media access controller, said optical energy modulated with said data, defining modulated optical energy (Koren et al.: col. 5, line 35 to col. 6, line 12) and means for transforming said modulated optical energy with said holographic transform function associated with said receiving subsystem (Mears et al.: fig. 4 and col. 4, line 65 to col. 5, line 52).

Regarding claim 16, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 14 wherein said address table further includes a plurality of network addresses (Koren et al.: col. 5, lines 35-63). The combination of Koren et al. and Mears et al. do not disclose that the network addresses are each a 64-bit word including CONTROL information, AGE information, PORT_NO information and NET_ADDR information. However, the applicant discloses that this claimed 64-bit network address information conforms to Ethernet standards (specification page 5, lines 6-11), thus it would have been obvious to one of ordinary skill in the art at the time of the invention that the network addresses would be the claimed 64-bit words since Ethernet standards are well known and conventional.

Regarding claim 17, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 16 further including means for comparing a subportion of said network addressing information with said plurality of addresses to ascertain to which of said plurality of ports said media access controller may transfer data (Koren et al.: col. 5, line 35 to col. 6, line 37).

Regarding claim 18 the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 14 wherein said means for associating each of said plurality of subsystems with one of said plurality of a holographic transform functions further includes first and second focusing transforms in optical communication with said plurality of sources (Mears et al.: fig. 4 and col. 4, line 65 to col. 5, line 7 and col. 5, lines 43-52), with said first focusing transform being in optical communication with each of said plurality of sources and having a plurality of first holographic transform functions associated therewith, with the first holographic transform function associated with one of said plurality of sources being different from the first holographic transform function associated with the remaining plurality of sources (Mears et al.: fig. 4, elements 8, 9 and H1-H5, and col. 5, lines 23-42) and said second focusing transform further includes a plurality of second holographic transform functions, with the second holographic transform function associated with one of said plurality of detectors being different from the second holographic transform function associated with the remaining plurality of detectors, with each of said second holographic transform functions matching one of said plurality of first holographic transform functions (Mears et al.: fig. 4 and col. 5, lines 43-52).

Regarding claim 19, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 18 wherein each of said plurality of subsystems is in electrical communication with each of said plurality of optical sources (Koren et al.: col. 6, lines 13-22).

Regarding claim 20, the combination of Koren et al. and Mears et al. disclose the switching device as recited in claim 18 wherein each of said plurality of subsystems are in electrical communication with one of said plurality of detectors, with the detector in electrical communication with one of said plurality of subsystems differing from the detectors in electrical communication with the remaining subsystems (Koren et al.: col. 6, lines 23-38).

Conclusion

7. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER